Fiber and Polymer Science (PhD)

Degree Requirements

The Ph.D. degree in Fiber and Polymer Science symbolizes the ability of the recipient to undertake original and scholarly work at the highest levels without supervision. The degree is, therefore, not granted simply upon the completion of a stated amount of course work but rather upon demonstration by the student of a comprehensive knowledge base and high attainment in scholarship. The student demonstrates this ability by passing a series of courses, creating a written critical literature review and original research proposal, defending an oral preliminary examination, writing a dissertation reporting the results of an original investigation, and making a final oral defense of the research before the student’s advisory committee and other interested members of the University community.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
<th>Counts towards</th>
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</thead>
<tbody>
<tr>
<td>FPS 801</td>
<td>Seminar</td>
<td>14</td>
<td></td>
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<tr>
<td>FPS 770</td>
<td>Advances in Polymer Science</td>
<td></td>
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<tr>
<td>TMS 762</td>
<td>Physical Properties Of Fiber Forming Polymers, Fibers and Fibrous Structures</td>
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Select two additional Courses from the following:

**Polymer Science**

- TC 771 Polymer Microstructures, Conformations and Properties

**Fiber Science**

- TC 704 Fiber Formation--Theory and Practice

- TMS 761 Mechanical and Rheological Properties Of Fibrous Material

- TMS 763 Characterization Of Structure Of Fiber Forming Polymers

**Coloration and Wet Processing**

- TC 706 Color Science and Color Laboratory

TC/FPS 710 Science of Dye Chemistry, Dyeing, Printing and Finishing

TC 720 Chemistry Of Dyes and Color

**Formation and Properties of Textile Products**

- FPS 750 Advances in Fabric Formation, Structure, and Properties

**Additional Courses** 58

“Elective Courses” that will be applied to reach 72 credit hours will be determined in conjunction with the academic committee.

**Total Hours** 72

1. All students must take two (2) semesters of FPS 801 Seminar.
2. Every student must obtain a grade of B or better in each of the four qualifying courses chosen.

Additional Requirements

- A minimum of 72 credit hours is required of students entering the program with a B.S. degree, or a minimum of 54 credit hours beyond the M.S. degree is required. (Students, who enter the Ph.D. program directly upon completion of an M.S. at NC State, may be allowed credit for up to 30 hours of their M.S. and thus would require 42 additional credit hours to complete the Ph.D.)

- Most of these credit hours are expected to be research credits (FPS 893 Doctoral Supervised Research or FPS 895 Doctoral Dissertation Research).

- Following successful course completion, the student needs to pass the defense of a research proposal to obtain the candidacy for the Ph.D degree.

- The final examination is an oral exam where the student presents and defends her/his research procedures, results and conclusions. The presentation will be made to an examining committee consisting of the student’s advisory committee and is open to interested faculty, staff and students. After the presentation the student will be orally examined by the examining committee. The final oral examination can be scheduled once all coursework requirements have been fulfilled and the committee is satisfied that the dissertation is complete, but not earlier than one semester after admission to candidacy.

- The anticipated time for completion of the Ph.D. program is four years for a student entering from a B.S. degree and three years for entry from an M.S. degree. The minimum time required (in exceptional cases) is two years beyond entry if the student obtained an M.S. degree from NC State.

Faculty

**Full Professors**

Harald Ade

Charles M. Balik
<table>
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<tr>
<th>Fiber and Polymer Science (PhD)</th>
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Roger L. Barker  
Keith R. Beck  
Carl L. Bumgardner  
Timothy Clapp  
Ahmed Mohamed El-Shafei  
Peter Fedkiw  
Harold S. Freeman  
Jan Genzer  
A. Blanton Godfrey  
Maureen Grasso  
David Hinks  
Cynthia L. Istook  
Saad A. Khan  
Tushar K. Ghosh  
Russell E. Gorga  
Christopher B. Gorman  
Peter J. Hauser  
Samuel Mack Hudson  
Warren J. Jasper  
Jeffrey Allen Joines  
Martin William King  
Traci Ann May Lamar  
Karen Leonas  
Trevor J. Little  
Lucian Lucia  
Marian G. McCord  
Roger Narayan  
Melissa Pasquinelli  
Behnam Pourdeyhimi  
Jon Paul Rust  
Abdel-fattah Mohamed Seyam  
Renzo Shamey  
Richard Spontak  
Alan E. Tonelli  
Richard A. Venditti  
Yingjiao Xu  
Xiangwu Zhang  

**Associate Professors**  
Katherine Emma Annett-Hitchcock  
Pamela Banks-Lee  
Kristin Anne Barletta  
Philip Bradford  
Emiel DenHartog  
Wei Gao  
Helmut H. Hergeth  
George Lawrence Hodge  
Jesse Stephen Jur  
Richard Kotek  
Wendy E. Krause  
Jerome Lavelle  
Shuang Lim  
Kavita Mathur  
Lokendra Pal  
Lisa Parrillo-Chapman  
Sonja Salmon  
Minyoung Suh  
Nelson Vinueza  

**Assistant Professors**  
Xiaomeng Fang  
Ericka Ford  
Robert Ormond  
Eunkyoung Shim  
Januka Budhathoki Uprey  
Rong Yin  
Mengmeng Zhu  

**Practice/Research/Teaching Professors**  
Nagendra Anantharamaiah  
Raymond Earl Fornes
Emeritus Faculty
Subhash K. Batra
Robert Alan Donaldson
Aly H El-Shiekh
Raymond Earl Fornes
Perry L. Grady
Bhupender S. Gupta
Harold B. Hopfenberg
Samuel Clyde Winchester Jr
Stephen Michielsen
Gary N. Mock
Mansour H. Mohamed
William Oxenham
Nancy Powell
Suzanne Townsend Purrington
William C. Stuckey Jr
Carl B. Smith
Gary W. Smith
Moon Won Suh
Michael Herbert Theil
Charles Tomasino
Carl F. Zorowski

Adjunct Faculty
Genevieve Garland
Abhay Sham Joijode
Mohamad Samir Midani
Behnam Pourdeyhimi
Orlando Jose Rojas